DOGM RECEIVED 1: 0/95 daaf

M/035/015

Response to DOGM inquiry of 12/15/95 on reclamation quantities:

02 ADBR1 - Geotextile Quantities

The following provides a breakdown of the reclamation dikes anticipated to require the placement of geotextile material and the calculation of square footage:

Dike #	Length (ft.)	Rise (ft.)	Top Width (ft.)	Bottom Width (ft.)	% of area with Geotextile	Plus 10% for loss	Geotextile Area (Sq. yd.)
6	7,000	12	30	126	50%	0.10	53,900.00
7	7,000	12	30	126	50%	0.10	53,900.00
8	4,000	7	30	86	100%	0.10	42,020.00
							149,820

05 AHAB, 06 AHAC, and 07 AHAB Planting Quantities

Reclamation of impoundment operational area and exterior embankment slope:

The impoundment operational area calculated within the crest is 3,198 acres. For reclamation and estimation purposes, this area was divided into three areas of equal size, referred to as Reclaim Areas VI, VII, and VIII. Area IX, the location of the proposed decant pond, was further delineated within Area VII. For estimating purposes, quantities were typically determined for the entire top surface and then divided equally between Reclaim Areas VI, VII & IX, and VIII.

Reclamation Type 1 Planting, with a range drill seeder, will be used on all areas that can support the equipment. This area was estimated to be a 200 foot wide strip 1) down gradient of the Peripheral Discharge System spigots (i.e. the crest centerline dike, which is approximately 33,300 feet long), 2) on the up gradient side of the Reclaim Dikes (i.e. the side that would not be buried by continued operations (approximately 7,000 feet each for Dikes 6 and 7, and 4,000 feet for Dike 8), and 3) on the north face of the existing impoundment (approximately 23,800 feet) for a total rangeland drill planting strip length of 75,100 feet.

Area = 200 ft wide * 75,100 ft / (43,560 ft^2/acre) = 345 acres

For estimation purposes, this was evenly divided by the three Reclaim Areas and is carried as 115 acres for Reclaim Areas VI, VII & IX, and VIII with two application for each area..

Reclamation Type 2 Planting, with a conventional truck mounted hydroseeder, will be used to spray a hydroseed mixture along a strip approximately 50 feet wide just beyond the edge of the Reclamation Type 1 Planting. This width was based on a conservative spray range for a hydroseeder being 100 feet, and the distance from the truck to the trafficable edge being 50 feet.

Using the same length of strip as Reclamation Type 1 Planting (75,100 ft.) and a 50 foot spray distance, the area covered by Reclamation Type 2 planting = 50ft. * 75,100 ft. / (43,560 ft^2/acre) = 86 acres. This area was rounded to 90 and divided by the three reclaim areas.

The remaining area within Reclaim Areas VI, VII & IX, and VIII will receive Reclamation Type 3 Planting, using an amphibious or LGP hyrdoseeder. Type 3 planting area = total area (-) Reclamation Type 1 planting area (-) Reclamation Type 2 planting area. (3198 acres (-) 345 acres (-) 90 acres = 2763 acres. Divide by three to determine breakdown of Type 3 planting per Reclaim Area = 2763 / 3 = 921 acres.

In tabular form, the planting sequence is:

	Reclaim Area VI	Reclaim Area VII & IX	Reclaim Area VII
Type 1 Planting	115	115	115
Type 2 Planting	30	30	30
Type 3 Planting	921	921	921

This is the matrix used for the estimate information in 05 AHAB, 06 AHAC and 07 AHAB for Reclaim Areas VI, VII & IX, and VIII.

DOES NOT INCLUDE TOE DITCH OR TOE DIKE

For the exterior of the embankment (called Reclaim Area Xa on Figure 7 in the initial DOGM application), the area from toe of the embankment to the interior of the embankment crest, outside of the footprint of the existing impoundment, was determined to be 769 acres. It was assumed that 25% of this area (193 acres) would be seeded using Reclamation Type 2 Planting (conventional hydroseeding) and the remaining 75% (577 acres) planted using Reclamation Type 1 Planting (utilizing a range drill). These acreages correlate to the 195 and 585 acres listed in the estimate summary. The slight overage in the estimate is judged to be negligible.

The area between the toe of the embankment and the outside toe of the toe dike will have been planted as part of the construction activities in 1996 -1999. It is anticipated that the toe ditch (and the toe dike, which forms one bank of the toe ditch) will remain in service after reclamation of the North Impoundment to control any seepage from the North Impoundment, so no post-construction disturbances are anticipated in this area and no quantities were listed in the estimate.

10 AHA Building Removal

Buildings to be removed are listed on the attached sheets. Cubic footage of buildings are penciled in margins.

11 AHAB Removal of Roads

Roadways to be removed are listed on the attached sheets. The actual area of roads that KUC intends to remove from service has been reduced from the areas stated in the DOGM application. The following roads are

anticipated to stay in service for access of monitoring, security, maintenance, and emergency response personnel and equipment: for the North Impoundment - TMP Gate 1 Entrance Road, Toe Dike Road, two of the header dike roads, Centerline Dike Road, and the Reclaim Dikes; for the existing impoundment - Lower Road, Powerline Road on the east side, Crest Road, various switch backs between the Crest Road and the Lower Road, and the Revegetation Dike Roads. Other existing impoundment roads will have been taken out of service as part of the closing of the existing impoundment. On the north face of the existing impoundment, all of the roads will be buried by the filling of the North Impoundment.

14 AHAJ Lime Treatment

Although some localized acidification is expected to occur on the embankment of the North Impoundment, Kennecott believes that the reclamation goal of establishing a plant community that is productive, self-sustaining, and effective in controlling wind and water erosion, can be met without the addition of a neutralizing agent. This was discussed at the Acidification Training Session at DOGM. It was discussed and agreed to by both DOGM and Kennecott that an allowance equal to the treatment of 10% of the embankment would be included in the reclamation bond estimate.

Mulch

The reclamation program submitted in the DOGM application was based on the proven methods currently employed on the existing impoundment. Kennecott currently utilizes techniques such as rangeland drilling fertilizing and hydroseeding to establish a successful vegetative cover. The seed mixes, fertilizer, mulch and tacifier application rates itemized on page 12 of the initial DOGM submittal were predicated on existing experience and used to determine the surety estimate for Reclamation Types 2 & 3. For the first seeding a mixture including 1,400 lbs/acre mulch and 100 lbs/acre of tackifier were included in the hydroseed. These application rates have proven success and will be utilized during reclamation of the North Impoundment.

DOGM Surety Estimate Back Up

This is an enhancement of the quantities submitted to DOGM in the Notice of Intent to Commence Large Mining Operations

The following lists of facilities will be removed after they are no longer needed for mining operations.

Not included in the following lists are facilities that are anticipated to be required for post-closure maintenance and monitoring of the North Impoundment, such as the toe ditch, Pump Station #9, sedimentation pond, clarification canal, UPDES Discharge Point #007, monitoring wells, security gates, and a select portion of the roads serving the post-closure monitoring and fire suppression access.

Also not included are underground pipelines that will be abandon in place.

STRUCTURES

SF / CF

East Cyclone Station (assumed to be same size as West Cyclone Station, may be smaller) (steel frame, metal roof and siding, concrete slab floor, 75' x 40' x 37' high, 40' x 120' x 54' high, 80' x 200' x 37' high) — 111,100 / 259,200 / 592,000

East Cyclone Station Feed Pump Building (steel frame, metal roof and siding, concrete slab floor, 56' x 73' x 30' high) — 122,640

East Cyclone Station Seal Water Pump house (steel frame, metal roof and siding, concrete slab floor, 20' x 20' x 10' high) — 4,000 / 1,088,840

West Cyclone Station (steel frame, metal roof and siding, concrete slab floor, 75' x 40' x 37' high, 40' x 120' x 54' high, 80' x 200' x 37' high)

West Cyclone Station Feed Pump Building (steel frame, metal roof and siding, concrete slab floor, 56' x 73' x 30' high)

West Cyclone Station Seal Water Pump house (steel frame, metal roof and siding, concrete slab floor, 20' x 20' x 10' high) — 1,088,840

New Tailings Bridge (steel frame, 1,188' long, maximum height 143', 888 tons of steel

North Concentrator Tailings Pump house (steel frame, metal roof and siding, concrete slab floor, 100' x 70' x 40' high) — 280,000

North Concentrator Tailings Pump house Flume crossing SR 201 (cast in place reinforced concrete, approximately 8' x 4' flume section, approximately 300' long) — (4+8+4) x 1.5' x 300/27 = 267

Tailings and Water Service Administration Building and Maintenance Shop (steel frame, metal roof and siding, concrete slab floor, assumed to be 100' x 150' x 24' high) — 360,000

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CF

SF

17,400 Tailings and Water Service Spare Parts Building (steel frame, metal roof and siding, concrete slab floor, 180' x 80' x 20' high) 288,000

Tailings and Water Service Fuel and Lube Facility (fuel in outside, steel tanks in secondary containment, lube fluids stored in a steel frame, metal roof and siding, concrete slab floor, 50' x 25' x15' high) 18,750

1250

16,800 Valve Stations (steel frame, metal roof and siding, concrete slab floor, two at 120' x 70' x 20' high, two at 70' x 70' x 20' high) 336,000
9800 196,000

✳ Transfer Vault, (cast in place reinforced concrete sump, 70' x 70' x 15' deep) Walls Only
70 x 4 x 15' x 1/27 = 156 cy

64 Guard Shack at TMP Gate # 1 (wood frame, wood sheeting, 8' x 8' x 8' high) 512

20,890 3,656,942 cf

ROADS

All roads to be removed are unpaved roads, typically 24 feet wide. Ave 18'

Copperton Single Point Discharge Pipeline Road, from centerline of new tailings bridge to west abutment 6,000 feet long (3.3 acres) 8000 cy

Supply Line Roads from centerline of new tailings bridge to East and West Cyclone Stations 17,000 feet (9.4 acres) 22,667 cy

Header Dike Roads (remove 6 of 8) 9,000' (5 acres) 17.7 Ac 12,000 cy
42,667 cy

PIPES

36" and smaller carbon steel lined and unlined ~~47,000'~~ 48200

60" to 37" carbon steel lined and unlined 1,200' (on tailings bridge)

36" and smaller HDPE 47,000' ~~+ 1,200' (on tailings bridge)~~

60" to 37" HDPE 37,000' ~~+ 1,200' (on tailings bridge)~~

UTILITIES

Electric distribution lines - all except power to pump station #9, dewatering wells and other necessary post closure support electric needs. 12,000 feet of 46 kVa

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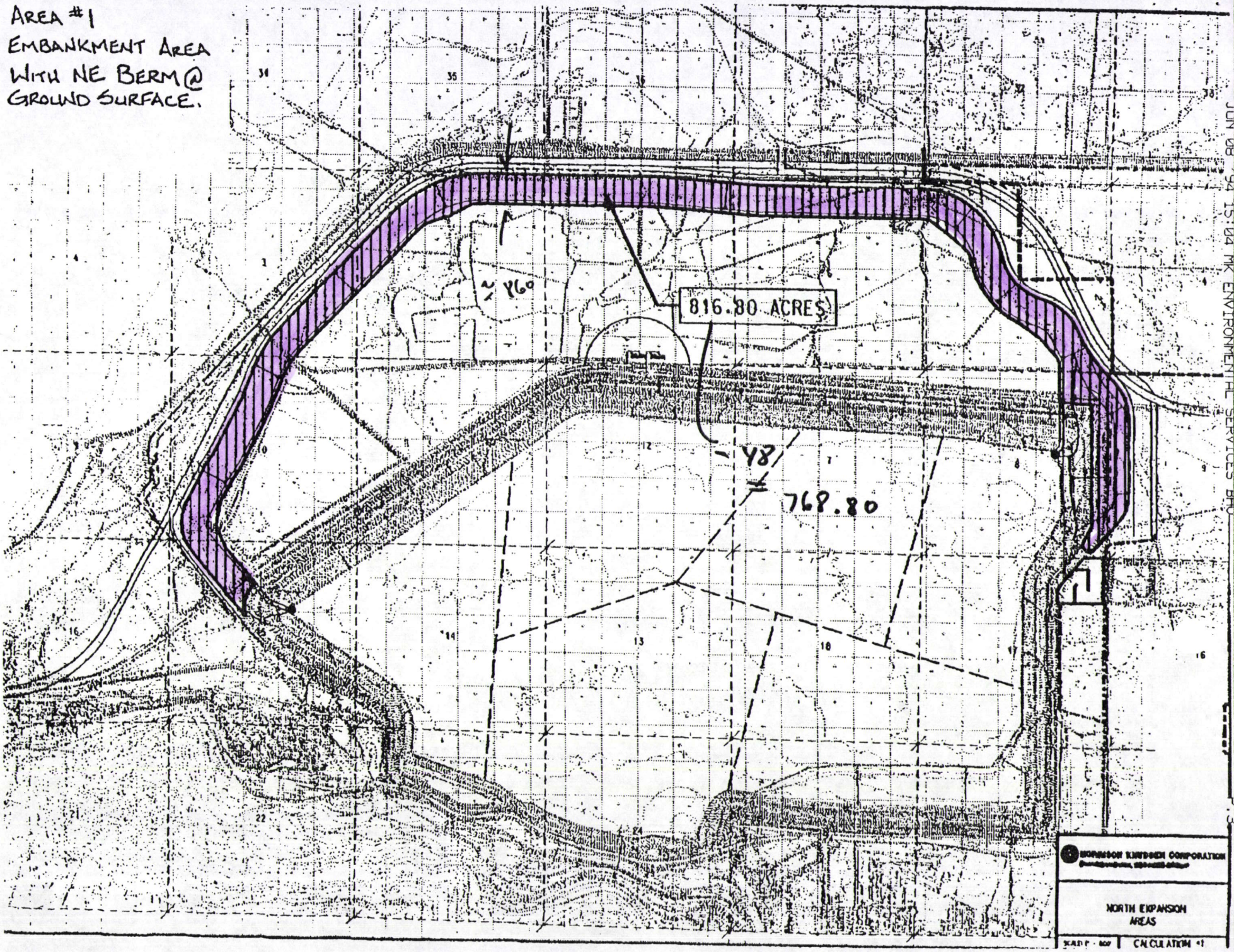
24,000
22,000
46,000

Substations and transformers at East and West Cyclone Stations, four Valve Stations, North Concentrator Tailings Pump House, and the Transfer Vault.

AREA #1
EMBANKMENT AREA
WITH NE BERM @
GROUND SURFACE.



AREA #5
IMPOUNDMENT AREA
INSIDE EMBANKMENT
TO INTERCEPT OF
EXISTING IMPOUNDMENT